Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Amendment of Part 2 of the Commission's Rules to Allocate Spectrum Below 3 GHz for Mobile and Fixed Services to Support the Introduction of New Advanced Wireless Services, including Third Generation Wireless Systems	)	ET Docket No. 00-258
	)	
Amendment of Section 2.106 of the Commission's Rules to Allocate Spectrum at 2 GHz for Use By the Mobile-Satellite Service	)	ET Docket No. 95-18
	)	
The Establishment of Policies and Service Rules for the Mobile-Satellite Service in the 2 GHz Band	)	IB Docket No. 99-81
	)	
Petition for Rule Making of the Wireless Information Networks Forum Concerning the Unlicensed Personal Communications Service	)	RM-9498
	)	
Petition for Rule Making of the UTStarcom, Inc., Concerning the Unlicensed Personal Communications Service	)	RM-10024

REPLY COMMENTS

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November 8, 2001

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EXECUTIVE SUMMARY

The record developed to date in response to the *Further Notice of Proposed Rulemaking* in ET Docket No. 00-258 ("*FNPRM*") does not establish that comparable replacement spectrum can be made available for Multipoint Distribution Service ("MDS") licensees in the 2150-2162 MHz band. It has been suggested that the 2385-2400 MHz, 2185-2200 MHz, 2010-2025 MHz or 1910-1930 MHz bands may be viable candidates. However, those who advocate relocation have not agreed on an appropriate relocation band and, more importantly, precious little technical data has been added to the record to confirm whether any candidate band can offer truly comparable spectrum. In particular:

- The record does not include a sufficient analysis of whether operation of MDS facilities in any of the candidate replacement bands would cause interference to or suffer interference from any incumbent users and thus would require relocation of those incumbent users. To the extent that relocation of incumbents who already occupy the proposed MDS relocation bands will be required, the record does not establish whether comparable replacement spectrum is available for incumbents, and, if such spectrum exists, a timeframe for when that spectrum will be available. To the extent that proposals have been advanced to migrate MDS to the 2185-2200 MHz or 2010-2025 MHz bands currently allocated to the Mobile Satellite Service, proponents have not fully addressed how the Commission's existing procedures for relocating fixed service and broadcast auxiliary service incumbents from that spectrum will have to be modified.

- Proponents of relocating MDS from 2150-2162 MHz have failed to submit technical analyses addressing whether operation of MDS facilities in the candidate replacement bands would cause interference to or suffer interference from services in adjacent bands. The record does not address whether the Commission will need to impose operational restrictions on adjacent services to avoid interference to MDS and, if so, whether those restrictions will be acceptable to the current users of those adjacent bands. The record reflects disagreement as to whether any guardbands will be necessary to prevent interference between relocated MDS facilities and their new spectral neighbors, and if so, how large those guardbands will have to be. Thus, it is uncertain whether the candidate replacement bands are large enough to accommodate the required 12 MHz of spectrum for MDS channels 1 and 2/2A plus any required guardbands.

- The record does not fully address the fact that one of the candidate bands, the 2385-2400 MHz band, is at a materially higher frequency than the 2150-2162 MHz band. No proponent of relocation to that band has addressed the degree to which path lengths on MDS channels 1 and 2/2A will be reduced at these higher frequencies, and the practical implications of that reduction.

Again, WCA must emphasize that it would not oppose relocation of MDS licensees from the 2150-2162 MHz band if the criteria set forth in WCA's initial comments in response to the *FNPRM* are satisfied. Thus far, however, it has not been shown that any of the proposed replacement bands satisfy those criteria. WCA will continue to work with the Commission to examine possible replacement spectrum and to craft appropriate rules and procedures to assure that MDS licensees are not adversely impacted by any relocation. To assist in that process, WCA recommends that the Commission encourage interested parties to develop a more thorough record as to the issues set forth herein, so that the Commission may bring the relocation question to closure as quickly as possible.

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Amendment of Part 2 of the	)	
Commission's Rules to Allocate	)	
Spectrum Below 3 GHz for Mobile	)	ET Docket No. 00-258
and Fixed Services to Support the	)	
Introduction of New Advanced	)	
Wireless Services, including Third	)	
Generation Wireless Systems	)	
	)	
Amendment of Section 2.106 of the Commission's	)	
Rules to Allocate Spectrum at 2 GHz for Use	)	ET Docket No. 95-18
By the Mobile-Satellite Service	)	
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Communications Service	)	

REPLY COMMENTS

The Wireless Communications Association International, Inc. ("WCA") hereby submits its reply to the initial round of comments filed in response to the Commission's *Further Notice of Proposed Rule Making* (the "*FNPRM*") in the above-captioned proceeding.

I. INTRODUCTION.

At paragraphs 38-40 of the *FNPRM*, the Commission asked commenting parties to address whether MDS licensees should be cleared from the 2150-2162 MHz band to create a large, contiguous band of auctionable spectrum for so-called "third generation" ("3G") mobile service and, if so, whether comparable replacement spectrum is available for MDS licensees displaced from the 2150-2162 MHz band.[1] The Commission also asked for comment on how the relocation procedures it adopted in its *Emerging Technologies* proceeding could be applied to displaced MDS licensees, and further asked for comment on "the types and magnitudes of costs to relocate incumbent [MDS] operations." Resolution of these questions is absolutely critical: without it, the Commission cannot make a rational determination of whether MDS licensees can and should be forced to migrate to new spectrum.

In response, WCA and others made it clear that MDS licensees in the 2150-2162 MHz band would not oppose relocation to new spectrum if, but only if, the Commission: (1) identifies 12 MHz of truly comparable replacement spectrum that is capable of being cleared of incumbent users; (2) establishes a transition mechanism that provides certainty and avoids burdens on the MDS/ITFS community; (3) requires those seeking to clear the 2150-2162 MHz band to bear all costs associated with relocating any incumbents that already occupy the replacement spectrum identified for MDS channels 1 and 2/2A, and assures that MDS licensees, system operators and subscribers are fully compensated for all costs associated with any relocation from the 2150-2162 MHz band; (4) adopts rules and policies that sufficiently protect relocated MDS stations in the replacement spectrum from interference caused by their new spectral neighbors; (5) fully preserves the rights MDS licensees acquired at the Commission's 1996 nationwide Basic

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[1] *FNPRM*, at ¶¶ 38-40.

Trading Area ("BTA") auction; and (6) resolves all relocation issues promptly.[2] Significantly, commenting parties who support relocation of MDS licensees from the 2150-2162 MHz band have not taken issue with any of these criteria, and in fact agree that relocated MDS licensees must receive comparable replacement spectrum and be fully compensated for the costs associated with any relocation.[3]

Unfortunately, as will be discussed in more detail below, the record created in response to the *FNPRM* provides the Commission with little meaningful insight as to whether any of the possible replacement bands in fact meets WCA's criteria. Nonetheless, if the Commission ultimately determines that there are compelling reasons to relocate incumbent MDS licensees to facilitate the auction of large contiguous blocks of spectrum, WCA remains committed to assisting in the Commission's effort to identify comparable replacement spectrum for MDS licensees operating in the 2150-2162 MHz band, and in developing rules and procedures that are consistent with the criteria outlined in WCA's initial comments.[4] Accordingly, the remainder of

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[2] *See* Comments of The Wireless Communications Association International, Inc., ET Docket No. 00-258, at 5-6 (filed Oct. 22, 2001)["WCA FNPRM Comments"]. *See also* Comments of Sprint Corporation, ET Docket No. 00-258, at 5-6 (filed Oct. 22, 2001); Comments of WorldCom, Inc., ET Docket No. 00-258, at 6-11 (filed Oct. 22, 2001); Comments of Nucentrix Broadband Networks, Inc., ET Docket No. 00-258, at 4-7 (filed Oct. 22, 2001).

[3] *See, e.g.*, Comments of Motorola, Inc., ET Docket No. 00-258, at 13 (filed Oct. 22, 2001) ("Motorola supports the allocation of comparable spectrum for [MDS] licensees, as well as full compensation for relocation costs to the new spectrum.") ["Motorola Comments"]; Comments of Nortel Networks, ET Docket No. 00-258, at 5 (filed Oct. 19, 2001) ("[T]he current MDS service users must be provided with appropriate replacement spectrum.").

[4] At a minimum, however, given the ongoing regulatory uncertainty over whether (if at all) MDS licensees in the 2150-2162 MHz band will be relocated to other spectrum, and given the impact that uncertainty is having on deployment of wireless broadband systems that utilize MDS spectrum, the Commission should issue a blanket extension of its current requirement that MDS BTA authorization holders build out their facilities by August 16, 2003 or their existing build-out date, whichever is later. *See Extension of the Five-Year Build-Out Period for BTA Authorization Holders in the Multipoint Distribution Service*, DA 01-1440, at ¶ 1 (rel. June 15, 2001). For the same reason, the Commission should also issue a blanket waiver of its Part 21 and Part 74 rules requiring minimum usage of MDS and ITFS frequencies. See 47 C.F.R. §§ 21.303; 74.931(c). It is economically wasteful and unfair to the

these reply comments will identify the technical, legal and economic issues that still must be addressed and resolved with respect to each of the replacement bands supported by other parties.

II. DISCUSSION.

In response to the *FNPRM*, various parties have identified four frequency bands as potential replacement spectrum for MDS licensees in the 2150-2162 MHz band. Those bands are the 2385-2400 MHz band, the 2185-2200 MHz band, the 2010-2025 MHz band and the 1910-1930 MHz band.[5] WCA's analysis of the unresolved issues relevant to each is set forth below.

A. THE 2385-2400 MHZ BAND

Leaving aside the substantial question of whether federal law permits the Commission to reallocate the 2385-2400 MHz band as replacement spectrum for any service displaced by 3G, there is substantial disagreement in the record as to whether the 2385-2400 MHz band can be comparable replacement spectrum for MDS licensees in the 2150-2162 MHz band.[6] Verizon,

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MDS/ITFS industry to require MDS and ITFS licensees to be constructing and operating facilities at a time when the Commission is contemplating a major change in the band that is used most often for upstream transmissions, but has not adopted relocation rules that assure compensation of all costs associated with relocation.

[5] Without identifying any suitable replacement spectrum or otherwise addressing any of the relocation issues set forth above, AT&T Wireless contends that relocating MDS licensees from the 2150-2162 MHz band would not be as difficult as relocating MDS/ITFS incumbents from the 2500-2690 MHz band, on the theory that "the [2150-2162] MHz band contains less that 10 percent of the spectrum in the [2500-2690 MHz] band, with far fewer licensees and operational systems." Comments of AT&T Wireless Services, Inc., ET Docket 00-258, at 5 (filed Oct. 22, 2001). AT&T Wireless overlooks the fact that every MDS/ITFS two-way broadband system operating today utilizes the 2150-2162 MHz band, and that hundreds of thousands of consumers are today receiving data or video services delivered over that spectrum. *See* WCA FNPRM Comments at 4. As a result, relocating MDS licensees from the 2150-2162 MHz band would affect the same number of subscribers as relocating MDS/ITFS licensees from the 2500-2690 MHz band, and thus would require full compensation for the costs associated with migrating those subscribers to new spectrum.

[6] The 2385-2390 MHz band is one of several bands that was transferred from Government to non-Government use pursuant to the provisions of the Omnibus Budget Reconciliation Act of 1993 and the Balanced Budget Act of 1997. *In the Matter of Reallocation of the 216-220 MHz, 1390-1395 MHz, 1427-*

Motorola and Ericsson support relocation of MDS licensees from the 2150-2162 MHz band to 2385-2400 MHz.[7] Cingular, on the other hand, has urged that the 2390-2400 MHz portion of the band remain allocated on a primary basis for Amateur Radio Services.[8] The Amateur Radio Relay League ("ARRL") agrees, although it suggests it might be possible for amateur radio users to share the 2390-2400 MHz band with some Federal Government users displaced to clear spectrum for 3G.[9] In addition, the Commission has pending before it a petition for rulemaking filed by the Wireless Information Networks Forum requesting, *inter alia*, that the Commission modify its technical rules for the 2390-2400 MHz band to permit easier use of asynchronous unlicensed PCS ("UPCS") devices in that spectrum.[10]

At the outset, additional study is required before the Commission can conclude that the 2385-2400 MHz band is truly comparable to the 2150-2162 MHz band. Of all the candidate bands, the 2385-2400 MHz band is the only one at a materially higher frequency than the current MDS channel 1 and 2/2A allocation. WCA agrees with the Ad Hoc MDS Alliance that any proposal to relocate MDS channels 1 and 2/2A to substantially higher frequencies raises issues

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1429 MHz, 1429-1432 MHz, 1432-1435 MHz, 1670-1675 MHz, and 2385-2390 MHz Government Transfer Bands, 15 FCC Rcd 22657, 22658 (2000). Accordingly, the Commission is required under federal law to auction the 2385-2390 MHz band pursuant to its authority under Section 309(j) of the Communications Act of 1934, as amended. *Id.* at 22675. The Commission must determine whether reallocation of the 2385-2400 MHz band as replacement spectrum is consistent with that federal mandate and, if it is not, the extent to which additional federal legislation may be necessary to permit reallocation of the 2385-2400 MHz band as replacement spectrum for services displaced by 3G.

[7] Comments of Verizon Wireless, ET Docket No. 00-258, at 10-11 (filed Oct. 19, 2001) ["Verizon Comments"]; Motorola Comments at 13; Comments of Ericsson, ET Docket No. 00-258, at 10-11 (filed Oct. 19, 2001) ["Ericsson Comments"].

[8] Comments of Cingular Wireless LLC, ET Docket No. 00-258, at 14 (filed Oct. 22, 2001) ["Cingular Comments"].

[9] Comments of the Amateur Radio Relay League, ET Docket No. 00-258, at 10-11 (filed Oct. 19, 2001).

[10] *FNPRM*, at ¶ 13. The 2390-2400 MHz band is designated for use by asynchronous data UPCS devices under Part 15 of the Commission's Rules. *Id.*, at ¶ 9.

(most relating to the shorter path lengths inherent in the use of higher frequencies) that will have to be addressed before the 2385-2400 MHz band can be given serious consideration.[11] Indeed, WCA's initial assessment is that relocation of MDS channels 1 and 2/2A to the 2385-2400 MHz band will result in service area reductions of approximately 20%. A reduction of that magnitude could substantially increase network infrastructure costs, particularly for rural MDS/ITFS operators who require longer path lengths in order to serve their subscribers in a cost-efficient manner.

In addition, those proposing relocation of MDS to 2385-2400 MHz have been silent on the issues arising from the fact that Federal Government flight test operations are permitted to remain in the 2385-2390 MHz band until 2007 in certain parts of the country.[12] Although the bulk of the 2385-2390 MHz band will be reallocated exclusively for non-government use effective January 1, 2005, Federal Government flight test programs in the 2385-2390 MHz band are grandfathered at seventeen sites across the country until January 1, 2007.[13] Major markets

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[11] Comments of the Ad Hoc MDS Alliance, ET Docket No. 00-258, at 6-8 (filed Oct. 22, 2001)["Ad Hoc FNPRM Comments"]. It must be remembered here that the Commission auctioned the 2150-2162 MHz band at its 1996 nationwide auction of MDS BTA authorizations, and that auction participants bid on and paid for their rights to use MDS channels 1 and 2/2A under the assumption that they would be located at 2150-2162 MHz. *See Amendment of Parts 21 and 74 of the Commission's Rules with Regard to Filing Procedures in the Multipoint Distribution Service and in the Instructional Fixed Television Service and Implementation of Section 309(j) of the Communications Act*, 10 FCC Rcd 9589 (1995). A forced relocation of those licensees to inferior spectrum would deny them the benefit of their bargain and undermine the integrity of the Commission's auction process. *See* Comments of The Wireless Communications Association International, Inc., ET Docket No. 00-258, at 45-48 (filed Feb. 22, 2001).

[12] While Motorola acknowledges the existence of these grandfathered sites, it does not discuss the implications of such grandfathering on the proposed relocation of MDS channels 1 and 2/2A. *See* Motorola Comments at 13 n. 45.

[13] *See* "Spectrum Reallocation Report – Response to Title III of The Balanced Budget Act of 1997," NTIA Special Publication 98-36, at 3-47 (February 1998) ["*1998 NTIA Spectrum Report*"]. The seventeen grandfathered sites are Yuma Proving Ground, AZ, Nellis AFB, NV; White Sands Missile Range, NM; Utah Test Range, UT; China Lake, CA; Eglin AFB, FL; Cape Canaveral, FL; Seattle, WA; St. Louis, MO; Palm Beach County, FL; Barking Sands, HI; Roosevelt Roads, PR; Glasgow, MT; Edwards AFB, CA; Patuxent River, MD; Wichita, KS; and Roswell, NM. *See id.* at 3-48. All but the

that could be implicated by these grandfathered sites include Albuquerque, NM; Baltimore, MD; Las Vegas, NV; Los Angeles, CA; Miami, FL; Mobile, AL; Orlando, FL; Salt Lake City, UT; San Diego, CA; Seattle, WA; St. Louis, MO; Tampa, FL; Tallahassee, FL and Washington, DC. The record is barren of any discussion as to whether MDS licensees relocated to the 2385-2400 MHz band would cause interference to the grandfathered flight test operations that are permitted to remain in the 2385-2390 MHz band until 2007, or whether those grandfathered operations would cause interference to MDS. If interference to or from flight test operations would occur, the Commission could not relocate MDS to 2385-2400 MHz until after January 1, 2007, assuming all other criteria for relocation can be met.

It is far from clear, however, that the other criteria can be met. Although not addressed by the proponents of the 2385-2400 MHz solution, the 2360-2385 MHz band is and will remain allocated on a primary basis to the Federal Government for the Mobile and Radiolocation services.[14] The military uses this spectrum to support telemetry in the flight testing of aircraft, spacecraft, and missiles at nine major military test ranges and numerous other test facilities. In addition, the commercial aviation industry uses the 2360-2385 MHz band for aeronautical flight testing. The Department of Energy uses the band for an airborne system that supports Sandia National Laboratory research and development at Edwards AFB and in New Mexico. Also, the 2360-2385 MHz band is occupied by the National Astronomy and Ionospheric Center ("NAIC"); pursuant to an agreement with the National Science Foundation, NAIC operates a megawatt planetary research radar as part of the Arecibo Observatory in Puerto Rico. Finally, satellite launch facilities at Cape Canaveral, FL and Vandenburg, CA have equipped their ranges with

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Edwards AFB and Patuxent River sites have been afforded a 160 kilometer radius of protection. *Id.* The Edwards AFB and Patuxent River sites each have a protection radius of 100 kilometers. *Id.*

[14] *1998 NTIA Spectrum Report* at 3-37.

2360-2385 MHz systems to support expendable launch vehicles.[15] The Commission therefore must develop a more complete record and carefully examine whether operation of MDS facilities at 2385-2400 MHz would cause interference to telemetry and other services below 2385 MHz.

WCA's concerns in this regard are heightened by NTIA's prior insistence that reallocation of the 2385-2390 MHz band for non-government use "must be accompanied by mandatory commercial receiver and transmitter standards to reduce the potential for mutual adjacent band interference" to airborne telemetry systems.[16] Obviously, more information is required as to the standards contemplated by NTIA, as they may disqualify the 2385-2400 MHz band from consideration as comparable to the 2150-2162 MHz band. Similarly, in the Commission's current proceeding regarding the authorization of terrestrial repeaters for Digital Audio Radio Service ("DARS") in the 2320-2345 MHz band, the Aerospace and Flight Test Radio Coordinating Counsel ("AFTRCC") has raised concerns regarding the potential for those repeaters to interfere with flight test telemetry operations at 2360-2390 MHz. Indeed, one DARS licensee has entered into an agreement with AFTRCC to restrict its terrestrial operations to avoid such interference.[17] Given that DARS is a minimum of 15 MHz removed from any flight test operations, and that the 2385-2400 MHz band is immediately adjacent to flight test spectrum, the issue of protecting flight test operations requires further analysis before any decision to place MDS in the 2385-2400 MHz band can be considered.

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[15] *See id.* at 3-37 to 3-40.

[16] *Id.* at 3-46.

[17] *See, e.g.*, Letter from William K. Keane, Esq., Counsel for the Aerospace and Flight Test Radio Coordinating Counsel, IB Docket No. 95-92 (filed Sept. 19, 2000); Reply Comments of Aerospace & Flight Test Radio Coordinating Council, IB Docket No. 95-91 (filed Mar. 8, 2000).

While WCA appreciates the concerns NTIA and AFTRCC have for assuring that incumbent users below 2385 MHz are protected from interference, the Commission must also identify whether existing operations below 2385 MHz would pose a threat to MDS facilities in the 2385-2400 MHz band. If so, the Commission will have to identify operational restrictions that can be imposed on services below 2385 MHz to avoid interference to MDS, and determine whether those restrictions are feasible. As part of that process, the Commission will have to consider whether a guardband is necessary to protect MDS from users below 2385 MHz and, if so, whether the 2385-2400 MHz band is wide enough to accommodate the 12 MHz required for MDS plus any guardband required to avoid interference from services below 2385 MHz.

Along similar lines, more information is also needed as to whether operation of MDS facilities in the 2385-2400 MHz band would cause interference to services operating above 2400 MHz, or, conversely, whether services above 2400 MHz would cause interference to MDS facilities in the 2385-2400 MHz band.[18] Since relocated MDS licensees cannot be forced to accept interference (to do so would render the spectrum inferior to the 2150-2162 MHz band and thus not comparable), proponents of relocating MDS to 2385-2400 MHz should be required by the Commission to address whether any operational restrictions (*e.g.*, power limitations, height

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[18] Effective August 10, 1995, the 2400-2402 MHz band was reallocated for exclusive non-government use pursuant to Title VI of the Omnibus Budget Reconciliation Act of 1993. Government operations in the 2400-2402 MHz band are permitted only on a non-interference basis and may not otherwise hinder the implementation of any non-government operations in that spectrum. Non-government operations in the 2400-2402 MHz band include Amateur services on a secondary basis and unlicensed Part 15 and ISM services. Since these existing non-government uses restrict the availability of the 2400-2402 MHz band for new services, the Commission has decided to keep this spectrum in reserve until new technology or other changes increase the opportunities for new operations. *See* Assessment of Electromagnetic Spectrum Reallocation, Response to Title X of the National Defense Authorization Act for Fiscal Year 2000, NTIA Special Publication 01-44, at 5-7 (Jan. 2001). The 2402-2417 MHz band is presently allocated to the Amateur service on a primary basis, but is also available on a secondary basis for government operations and for unlicensed Part 15 and ISM services. *See, e.g., Amendment of Part 15 of the Commission's Rules Regarding Spread Spectrum Devices (Further Notice of Proposed Rulemaking),*

restrictions, spectral mask, etc.) can be imposed on services above 2400 MHz to avoid interference to MDS and, if so, whether such restrictions are feasible. Similarly, the Commission should require further study of whether incumbents above 2400 MHz could tolerate any interference that would be caused by MDS operations in the 2385-2400 MHz band, whether any guardband would be required to prevent interference between MDS channels 1 and 2/2A and services above 2400 MHz and whether the 2385-2400 MHz band is wide enough to afford a full 12 MHz for MDS channels 1 and 2/2A plus whatever guardband may be necessary.[19]

The proponents of relocating MDS licensees from 2150-2162 MHz to 2385-2400 MHz also do not indicate whether comparable replacement spectrum is available for amateur radio and UPCS incumbents who would have to be cleared out of the 2390-2400 MHz band to make room for relocated MDS licensees. If such replacement spectrum is available, the Commission must determine how the incumbent users would be cleared out of the 2390-2400 MHz band, and how long it would take to clear that spectrum.[20] Absent this information, the Commission cannot draw any definitive conclusions as to whether the 2385-2400 MHz band is viable replacement spectrum for MDS licensees who are removed from the 2150-2162 MHz band for the benefit of 3G.

ET Docket No. 99-231, FCC 01-158 (rel. May 11, 2001) (proposing to amend rules for unlicensed commercial spread spectrum devices in the 2.4 GHz band).

[19] While Motorola states that the 2385-2400 MHz band "would provide MDS licensees with a comparable amount of spectrum and would allow spectrum for any necessary guardbands for adjacent channel protection," it provides no technical data which demonstrates why this is so. Motorola Comments at 13.

[20] The process of notifying and then relocating amateur radio operators may prove to be difficult. As noted by Cingular, amateur radio operators are not required to operate from a specific location, and thus can initiate transmissions anywhere within the United States. *See* Cingular Comments at 14. Moreover, the transmitted power levels of amateur radio operations may be very high and vary significantly, thus further complicating the Commission's analysis of whether potential replacement spectrum for amateur radio operations is truly comparable to the 2390-2400 MHz band. *Id*; *see also* ARRL Comments at 9

B. THE 2185-2200 MHZ BAND

The 2165-2200 MHz band is currently allocated as downlink spectrum for the Mobile Satellite Service ("MSS"), and the Commission has proposed to retain at least the 2185-2200 MHz portion of the band for MSS.[21] Although Arraycomm has suggested that the 2185-2200 MHz band might be suitable replacement spectrum for MDS licensees in the 2150-2162 MHz band,[22] additional information must be adduced by the Commission before this proposal can be given serious consideration.

Most important, Arraycomm has provided no analysis whatsoever of the interference issues presented by a relocation of MDS channels 1 and 2/2A to the 2185-2200 MHz band. Arraycomm's comments offer no analysis of whether government operations in the 2200-2290 MHz band would cause interference to MDS in the 2185-2200 MHz band and, if so, whether any restrictions on governmental operations (such as reduced power limits or improved spectral masks) are required and feasible to prevent such interference. [23] Nor does Arraycomm address

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(noting "the essentially mobile or itinerant character of Amateur stations; relatively high Amateur transmitter power levels, and extremely sensitive receivers").

[21] *See FNPRM*, at ¶ 29.

[22] Comments of Arraycomm, ET Docket No. 00-258, at 9-10 (filed Oct. 22, 2001).

[23] NTIA has described Federal Government usage of the 2200-2290 MHz band as follows:

> This band is predominantly used for Federal terrestrial and space telemetry systems. Space applications include the NASA Tracking Data Relay Satellite System (TDRSS) and the Air Force space Ground Link Subsystem (SGLS). These two systems provide the telemetry, telecommand and control for all Federal satellite systems and some activities with national security implications. Telemetry, Tracking and control functions for a new satellite ALEXIS will be performed in this band as part of U.S. treaty verification efforts. Terrestrial telemetry is predominantly air-to-ground links for various operational and experimental systems. Growth averages about 80 new assignments per year.
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> TDRSS operations from 2200-2290 MHz are essential to NASA Earth exploration, space operations, and space research activities. This use includes space-to-Earth and space-to-space transmissions. . . The band also supports similar space-to-Earth and space-to-space

whether guardbands between MDS and governmental operations will be required (or, if so, whether the band is wide enough to accommodate them). Conversely, Arraycom has not addressed whether those government operations above 2200 MHz would suffer interference from a relocation of MDS to 2185-2200 MHz or whether any such interference can be accepted. To the extent (if any) that there will be such interference, Arraycomm does not address whether any guardband would avoid such interference, or whether the 2185-2200 MHz band is wide enough to accommodate 12 MHz for MDS channels 1 and 2/2A and any required guardband.[24]

Similarly, Arraycomm has not shown whether MDS at 2185-2200 MHz will cause interference to adjacent services in the 2165-2185 MHz band, or, conversely, whether those services will cause interference to MDS. It must be remembered that the 2165-2185 MHz band may ultimately be used as downlink for MSS space operations, as uplink or downlink for MSS terrestrial operations, or for 3G, depending upon the outcome of this proceeding and whether the Commission decides in IB Docket No. 01-185 to permit MSS operators to deploy their spectrum

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> telemetry, telecommand and control for military satellites through the Air Force SGLS system.
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> Terrestrial telemetry is heavily used in this band for such purposes as nuclear testing, airborne weapons testing, aircraft flight testing, and a wide variety of experimental and research projects. Most of this equipment was moved to this band during the 1970's, at significant expense to the Federal Government, to reaccommodate requirements in lower bands for other uses. Other mobile applications include narrowband uplinks and downlinks in conjunction with radar laden tethered balloons. These balloons are used in law enforcement and drug interdiction missions.
>
> Fixed microwave systems are also in this band for control of land-mobile radio systems to provide voice and data connections between sites where commercial service is not available, and where the 1710-1850 MHz band is saturated.

Spectrum Use Summary 137 MHz - 10 GHz, NTIA Report (Aug. 22, 1997), *at* http://www.ntia.doc.gov/osmhome/nebbia03.html.

[24] In particular, Arraycomm takes no notice of the fact that MDS channels 1 and 2/2A are used for upstream transmissions, and that relocation of those channels to what is now MSS *downlink* spectrum will likely exacerbate the already difficult guardband issue.

in the 2 GHz band for terrestrial use. Any analysis must account for all three possibilities. As will be noted in WCA's upcoming comments in response to the Commission's *Notice of Proposed Rulemaking* in IB Docket No. 01-185, that analysis is complicated even further by the failure of the MSS proponents to provide much meaningful information in IB Docket No. 01-185 as to their technical plans for MSS terrestrial service and, consequently, the potential for terrestrial MSS to interfere with neighboring services. The Commission requires far more information before it can (1) conclude that MDS channels 1 and 2/2A can relocate to the 2185-2200 MHz band without suffering interference, and (2) identify the technical restrictions necessary to prevent such interference.

Finally, under the procedures established in the Commission's *2 GHz MSS Allocation Order*, MSS licensees in the 2165-2200 MHz band are obligated to relocate incumbent fixed service ("FS") operators with whom they cannot share spectrum.[25] Obviously, those FS licensees would have to be relocated prior to any move of MDS into the 2185-2200 MHz band. Arraycomm has not addressed how reallocation of the 2185-2200 MHz band for MDS would affect the Commission's plans and procedures for relocating any FS incumbents out of that spectrum.[26] Nor has Arraycom addressed how reallocation would affect the Commission's implementation of the band plan it adopted for MSS in IB Docket No. 99-81, and whether its

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[25] *FNPRM*, at ¶ 34.

[26] *See id.* Various parties have already expressed concerns about how the Commission's resolution of this proceeding will bear on relocation of FS incumbents in the 2.1 GHz band. *See* Comments of the American Petroleum Institute, ET Docket No. 00-258 (filed Oct. 19, 2001); Comments of Blooston Law Firm, ET Docket No. 00-258 (filed Oct. 22, 2001); Comments of APCO, ET Docket No. 00-258 (filed Oct. 19, 2001).

proposal will limit the flexibility of MSS licensees to use the entire 2 GHz band on a secondary basis.[27]

C. THE 2010-2025 MHZ BAND

Cingular and Motorola have suggested that MDS licensees in the 2150-2162 MHz band could be relocated to the 2010-2025 MHz band, which is currently allocated as uplink spectrum for MSS.[28] Neither Cingular nor Motorola discuss whether MDS at 2010-2025 would cause interference to broadcast auxiliary service ("BAS") operations above 2025 MHz, or, conversely, whether BAS operations above 2025 MHz would cause interference to MDS.[29] No showing has been made as to whether guardbands will be required to avoid any such interference, whether the 2010-2025 MHz band is wide enough to accommodate a full 12 MHz for MDS channels 1 and 2/2A plus any required guardbands, whether operational restrictions would need to be imposed on BAS to avoid interference to MDS, or whether those restrictions would be feasible.

Also, neither Cingular nor Motorola have addressed whether MDS at 2010-2025 MHz will cause interference to services below 2010 MHz or, conversely, whether those services will cause interference to MDS. Pending the outcome of this proceeding and IB Docket No. 01-185, services below 2010 MHz may include MSS space uplink, MSS terrestrial uplink or downlink, or 3G. As to each of these, no showing has been made as to guardband requirements, whether the 2010-2025 MHz band is wide enough to accommodate 12 MHz for MDS channels 1 and 2/2A plus a guardband, or whether the Commission would need to impose any operational restrictions

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[27] *See FNPRM*, at ¶ 34.

[28] Cingular Comments at 13-14; Motorola Comments at 14. *See also* Ericsson Comments at 10-11.

[29] The Society of Broadcast Engineers has already objected to relocation of MDS to the 2020-2025 MHz band, citing concerns about brute force overload to adjacent channel BAS operations above 2025 MHz. Comments of the Society of Broadcast Engineers, Inc., ET Docket No. 00-258, at 4 (filed Oct. 19, 2001).

on services below 2010 MHz to avoid interference to MDS and, if so, whether those restrictions would be feasible.

Finally, neither Cingular nor Motorola have responded to the Commission's request for comment on the impact reallocation of the 2010-2025 MHz band would have on the Commission's plan to relocate incumbent BAS operators out of that spectrum pursuant to the *2 GHz MSS R&O* in ET Docket No. 95-18.[30] In particular, the Commission suggests that its current approach to relocating BAS incumbents may not be feasible if the spectrum is reallocated for non-MSS use, and has asked a variety of questions as to how the BAS relocation process would need to be modified if the 1990-2025 MHz band were reallocated for non-MSS use, how reallocation of that spectrum would affect the implementation of the band plan in the *2 GHz MSS R&O*, and how reallocation would affect the flexibility of 2 GHz MSS licensees to use the entire 2 GHz band on a secondary basis.[31] A further record on each of these points is required before the Commission may rationally evaluate whether the 2010-2025 MHz band is viable replacement spectrum for MDS licensees in the 2150-2162 MHz band.

D. THE 1910-1930 MHZ BAND

There is substantial disagreement in the record over whether the UPCS spectrum at 1910-1930 MHz should be reallocated as replacement spectrum for MDS licensees in the 2150-2162 MHz band. At least one commenter has asserted that this spectrum is the best option for providing MDS with truly comparable spectrum and will be relatively easy to clear of incumbents.[32] Verizon and Motorola, on the other hand, assert that relocation of MDS channels

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[30] *FNPRM*, at ¶ 33.

[31] *Id.*

[32] *See* Ad Hoc MDS Coalition Alliance Comments at 19-22.

1 and 2/2A to the 1910-1930 MHz band is not feasible due to potential interference between MDS and Personal Communications Service ("PCS") operations on adjacent spectrum below 1910 MHz and above 1930 MHz.[33] Various members of the unlicensed PCS community also oppose reallocation of the 1910-1930 MHz band, and contend that the Commission should instead make the UPCS more robust by preserving the UPCS allocation and eliminating service restrictions in the 1910-1930 MHz band.[34]

Given the current state of the record, it would be premature for the Commission to draw any definitive conclusions regarding the viability of the 1910-1930 MHz band as replacement spectrum. Rather, the Commission should encourage interested parties to submit further information regarding (1) the potential for interference (including guardband requirements) from MDS to PCS/3G uplink operations below 1910 MHz, and *vice versa*, (2) the potential for interference (including guardband requirements) from MDS to PCS downlink operations above 1930 MHz, and *vice versa*; and (3) whether replacement spectrum exists for unlicensed PCS and co-primary fixed service incumbents who would be required to vacate 1910-1930 MHz to accommodate relocation of MDS.[35]

III. CONCLUSION.

Notwithstanding the lack of detailed analyses in the current record, WCA reiterates that it would not oppose relocation of MDS licensees from the 2150-2162 MHz band if the criteria for relocation set forth in WCA's initial comments are satisfied. At the present time, however, none

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[33] *See* Verizon Comments at 9-10; Motorola Comments at 15-18. *See also* Cingular Comments at 12-13.

[34] *See, e.g.*, Comments of Avaya, ET Docket No. 00-258, at 10 (filed Oct. 19, 2001); Comments of UTAM, ET Docket No. 00-258, at 11-15 (filed Oct. 19, 2001).

[35] Indeed, the Commission should encourage interested parties to provide similar information with respect to the other three proposed replacement bands as well.

of the replacement bands proposed by other parties have been shown to satisfy those criteria. WCA remains fully committed to working with the Commission to help bring this matter to closure as quickly as possible and thereby remove the last cloud of regulatory uncertainty over deployment of MDS/ITFS broadband service in the 2150-2162 MHz and 2.5 GHz bands.

Respectfully submitted,

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November 8, 2001